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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/616,018

Filing Date: July 09, 2003

Appellant(s): ALBERT ET AL.

William Beard, Jr.  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed Oct 27, 2006 appealing from the Office action mailed Jun 1, 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

4,868,349	Chia	9-1989
6,160,708	Loibl et al.	12-2000
5,504,378	Lindberg et al.	9-1996
5,940,271	Mertol	8-1999
5,966,291	Baumel et al.	10-1999

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chia, U.S.

Patent 4,868,349 and in view of Lindberg et al., U.S. Patent 5,504,378.

Chia shows, in Figs. 1-5, a plastic control plate comprising:

a single piece body 31 having an opening with a bottom wall having at least a partially flat area;

a heat conduction metal body plate 19 having a top surface and a bottom surface, the plate at least partially integrated in the plastic control plate, wherein the heat conduction metal body plate top surface is flush with a top surface of the plastic plate and wherein the bottom surface rests at least partially on the bottom wall of the opening;

but fails to show at least one channel and the heat conduction body being an aluminum plate.

Lindberg et al. shows, in Figs. 1-11, a control plate comprising at least one channel having an opening (formed by 132, 146, and 134).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the heat transfer method of Chia with the heat sink device as taught by Lindberg et al. in order to increase the heat transfer so that the over heating can be reduced thus increasing the life of the device.

As to the matter of the heat conducting body being an aluminum plate, it would have been obvious to make the copper heat conducting body with aluminum in Chia since the Examiner takes Official Notice of the equivalence of aluminum and copper for their use in the heat conducting material in the heat transfer art and the selection of these known material to form the heat sink of Chia would be within the level of ordinary skill in the art.

Claims 1-5, 7-12, 14-16, and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loibl et al., U.S. Patent 6,160,708 in view of Lindberg et al., U.S. Patent 5,504,378.

Loibl et al. shows, in Figs. 1 and 2, an arrangement comprising a single piece plastic control plate body 11 having a bottom wall (on latch 15) having at least a partially flat area, a heat conduction aluminum body plate 10 at least partially integrated in the control plate, a substrate 23 carrying electronic components of the gearbox control electronics system arranged directly on the upper surface of the heat conduction body, wherein the gearbox control

electronics system is electronically contacted via a flexible circuit board, wherein the gearbox control electronics system is electronically contacted via a stamped-grid arrangement, which extends partially over the upper surface of the plastic control plate and partially over the upper surface of the heat conduction body, wherein the bottom surface of the metal body plate rests at least partially on the bottom wall of the opening, and wherein the heat conducting plate being flush with the control plate;

but fails to show a plurality of channels formed between the control plate body and the metal heat conduction body.

Lindberg et al. shows, in Figs. 1-11, a control plate comprising a plurality of channels in the form of a U-shape (formed by 132, 146, and 134).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the heat transfer method of Loibl et al with the heat sink device as taught by Lindberg et al. in order to increase the heat transfer so that the over heating can be reduced thus increasing the life of the device.

Claims 1-5, 7-12, 14-16, and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mertol, U.S. Patent 5,940,271 in view of Linberg et al., in view of Chia, U.S., in view of Baumel et al., U.S. Patent 5,966,291, and in view of Loibl et al.

Mertol shows, in Figs. 11 and 14, an arrangement comprising a single piece plastic control plate 11, an aluminum heat conduction body 8 partially integrated in the plastic control plate, a substrate 2 carrying electronic components arranged directly on the upper surface of the heat conduction body, wherein the control electronics system is electrically contacted via a

Art Unit: 2167

flexible circuit board, but fails to show the surfaces of the plastic control plate and the heat conduction body being flushed, the heat conduction body forming a U shape wall to form a cooling fluid channel, and the control circuit being a gearbox control circuit.

As to the matter of the surfaces being flushed, Chia, Baumel et al., and Loibl et al. show the heat conducting plates 19, 21, and 10, respectively, each having a top surface that is flushed with the plastic control plates 31, 22, and 11, respectively.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the control system of Mertol with the compacted control system as taught by Chia, Baumel et al., and/or Loibl et al. in order to reduce the size of the control device so that space and weight can be reduced.

Lindberg et al. shows, in Figs. 1-11, a control plate comprising a plurality of channels in the form of a U-shape (formed by 132, 146, and 134).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the heat transfer method of Mertol with the heat sink device as taught by Lindberg et al. in order to increase the heat transfer so that the over heating can be reduced thus increasing the life of the device.

As to the matter of the gearbox control circuit, Lindberg et al. teaches that the electronic control circuit is utilized to control a gearbox in a vehicle.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the control circuit of Mertol to control a gearbox as taught by Lindberg et al. in order to provide a more effective and efficient control system so that gear shifting is smoother.

**(10) Response to Argument**

**Response to Ground #1**

In response to the appellant's argument that Chia is a non-analogous art, the Examiner disagrees. Chia is both in the field of appellant's endeavor and reasonably pertinent to the particular problem with which the invention was concerned. The field of appellant's endeavor is in the art of plastic control plate as recited in claims 1-5. Chia shows, in Fig. 2, a process of pouring fluid plastic to be molded around the electronic devices to form a plastic control plate. Furthermore, Chia is reasonably pertinent to the particular problem with which the invention was concerned. The present invention deals with the problem of heat dissipation in the plastic control plate. Certainly, Chia discusses the problem of heat dissipation and its resolution in the Summary of the Invention as described in column 2, lines 28-39.

In response to the appellant's argument that Lindberg et al. does not teach or suggest that the control plate is made of plastic, it is the Examiner's view that the secondary (or modifying) reference, Lindberg et al., does not need to show the control plate being made of plastic. Chia, the primary (or base) reference, shows such plastic control plate. Lindberg et al. discuss in length concerning the problem of cooling the electrical components with air flow (see column 2, lines 38-55). And in the Summary of the Invention, Lindberg et al. teaches that forming a cooling fluid channel within the control plate would greatly reduce the problem of over heating (particularly see column 3, lines 3-17). Therefore, Lindberg et al. is utilized to modify Chia's air cooled plastic control plate with the cooling fluid channel as taught by Lindberg et al. in order to show that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to improve the heat transfer and thus improve the life of the device.

In response to the appellant's argument regarding the first and second modification scenarios, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

### **Response to Ground #2**

(Note: The Final Office action made on Jun 1, 2006 has a typo in the rejection by Loibl et al. in view of Chia and in view of Lindberg et al. The rejection should have been made by Loibl et al. in view of Lindberg et al. and excluded Chia reference. Such correction is reflected above in the Grounds of Rejection. Such correction does not change the substance of the rejection since the ground of rejection is solely based on Loible et al. and Lindberg et al.)

In response to the appellant's argument that Loibl et al. does not represent related prior art but discloses merely a carrier plate, it is the Examiner's position that Loibl et al. is an analogous art. At least, Loibl et al. deals with an arrangement of a plastic control plate and a gearbox control electronic system. Such arrangement is in the field of appellant's invention.

In response to the appellant's argument that the rejection fails to establish a *prima facie* case of obviousness because the modification of Loibl with Lindberg would destroy the device of Loibl, again, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what

the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). It is the teaching of the cooling channel provided in the control plate by Lindberg et al. that, the Examiner believes, can be applied in the plastic control plate. Loibl discloses that the aluminum plate 10 acts as a heat sink (see col. 3, lines 43-54). In general, if there is a heat sink, then by definition, there is some sort of fluid, whether it be in the form of air or liquid, surrounding the heat sink. Therefore, Loibl at least is concerned about the heat dissipation of the control plate. By studying the disclosure of Loibl, one of ordinary skill in the art may find that the heat transfer in Loibl may not satisfy a design criteria. However, Lindberg teaches that a cooling fluid channel provided in the control plate would greatly improve the cooling effect on the control plate. With the idea of the cooling channel then, it would have been obvious to a person of ordinary skill in the art to modify the control plate of Loibl with a cooling fluid channel to improve the controlling of the heat dissipation.

**Response to Ground #3**

In response to the appellant's argument that Mertol is a non-analogous art, the Examiner disagrees. Mertol is both in the field of appellant's endeavor and reasonably pertinent to the particular problem with which the invention was concerned. As discussed above, the field of appellant's endeavor is in the art of plastic control plate and the particular problem with which the invention was concerned is in the area of heat dissipation in the control plate. Mertol discloses in col. 6, line 29 that the control plate 11 can be made of plastic and in col. 6, lines 33-48 that the effective heat sink configuration is contemplated. Therefore, Mertol is analogous.

In response to the appellant's argument that the rejection fails to establish a *prima facie* case of obviousness because the modification of Mertol with the secondary references would destroy the device of Mertol, again, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The same reasoning, as discussed above, can be applied in this section in that Mertol is concerned with heat dissipation problem in the electronic control plate. And Lindberg et al. is utilized to show that it would have been obvious to a person of ordinary skill in the art to apply the cooling fluid channel concept as taught by Lindberg et al. in the control plate of Mertol to increase the heat transfer rate so that the device would last longer.

In response to the appellant's argument that it would be almost impossible to modify the stiffener 11 to flush with the surface of the substrate 2, it is discussed above in the grounds of

rejection that Mertol fails to show the plastic control plate 11 and the heat conducting body 8 being flushed, not the substrate 2.

In response to the appellant's argument regarding the first and second modification scenarios for Mertol, again, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Chk (Chong Kim) 



CHONG H. KIM  
PRIMARY EXAMINER

Conferees:

Jc (John Cottingham) 

Ha (Hosain Alam) 